

# **Award as an innovation public driver for small and medium entrepreneurs (SMEs) in Brazil**

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## **Abstract**

This study investigated SMEs winners of Finep Prize (a Brazilian innovation award for organizations and individuals) in recent years. Using case study and survey techniques, authors were able to compare several aspects of those winners as well as analyze the Prize as public policy instrument to stimulate innovation.

Keywords: Public policy, FINEP, Innovation.

## **Introduction**

Granting awards for public and private institutions in recognition to their innovation actions is an ancient tool to stimulate individual or groups activities as well to encourage progress in some areas.

Zuckerman (1992) noted that in the eighteenth century France and the UK already contemplated scientists to contribute to advances in areas such as astronomy. In France, the award of the *Académie des Sciences* was used to encourage the settlement of problems, while in the UK the Royal Society of London recognized work already done in science.

The awards can be classified in two categories, one that is aimed at solving a specific problem, which induces and encourages the achievement of a predetermined goal, such as The X Prize and the Ansari X Prize in the United States (Achenbach, 2010; Kay, 2012) and another that recognizes progress already achieved as the Nobel Prize.

Viewed in a global level, the awards constitute public policies that increasingly have been used by policy makers from different countries as innovation incentive tools. Among the various types of innovation policies, the awards have some advantages, for contributing to technological advances and to the use public resources for developing ideas from different sources, such as universities, companies and NGOs (Kay, 2012).

In Brazil, since the early 2000s the government awarded innovative ideas developed by organizations and individuals. The FINEP Innovation Prize is granted by FINEP, a public company under the Ministry of Science, Technology and Innovation, that operates in support of innovative actions undertaken by different entities in all regions of the country.

The award is divided into categories and the small and medium-sized entrepreneurs are the ones with more registrations. This scenario contrasts with the fact that in Brazil are not the

small and medium-sized companies that invest more in innovation. In order to emphasize the importance of small and medium-sized for innovative development scenario in the country, this paper investigates the characteristics of small and medium-sized enterprises that won the FINEP Prize from 2001 to 2013, as well as analyzes the prize as an incentive policy to promote innovation in the country.

## **Methodology**

For this research, we utilized different ways to obtain data about the Prize and their winners companies. Firstly, we made a questionnaire and sent it to FINEP asking for information about the winners SMEs from 2001 to 2013. Once companies identified, we researched about their innovations as well as the managers to answer our questionnaire. Companies data were collected using a standardized questionnaire, semi-structured, especially developed for the research with questions about their innovation structure and management; the importance of the Prize for the companies and their obstacles for innovation development. Another method used by us was the interview with one of the winning companies

## **Prize as Public Policy: The FINEP Innovation Prize**

As pointed out by Nelson (2006), innovation is not a random process; although conversely there is a significant efforts which are based on the viability and profit for technological advancement. In this context, the Government acts as the driver of Science and Technology activities, through the creation and implementation of specific policies to support and grant funding and tax incentives. Thus, it is worth highlighting the relevance that the Brazilian federal government has given to innovation in the pursuit of economic development of the country in recent times.

Since the 2000s, several actions have been taken by the government to encourage the development of innovations in the country. Measures such as support for sectors considered strategic, the creation of funds for financing companies and the encouragement of partnerships between universities and companies were some of them. In addition, there was the strengthening of government entities to support innovation such as the Ministry of Science, Technology and Innovation and FINEP, a public company subordinated to that Ministry.

FINEP is the institution responsible for the creation and the expansion of the FINEP Innovation Prize that recognizes innovative activities by companies, individuals and non-profit institutions in Brazil.

Although there are others rewards to encourage recognition to innovative efforts in the country, offered by some other entities, the FINEP Prize stands out for the number of participants, the breadth of the different sectors and sizes of companies, as well as the monetary amount currently offered to the winners.

The Prize was created in 1998 in the south of the country, when it had 25 entries. In 2000, there was the award expansion to others Brazilian regions and the number of applications reached 279. In the edition of 2013, a record 570 innovations signed up for the Prize, the largest numbers pf entries since it was launched. The award has two stages: regional followed by the national stage. Therefore companies in each region of the country sign up their projects firstly in their regions and then, the winner of each region competes at the national level.

The FINEP Prize also have increased the prize amounts since his first edition, from symbolic awards to the monetary one nowadays. In addition, in its first editions the prize was

sponsored by public and private companies and currently the entity intended own resources for the Prize (FINEP, 2013).

In addition, currently the Prize is divided into nine different categories. For this work we have chosen two of them: the small and the medium-sized entrepreneurs. The small category was created in the 2001 edition of the Award and the medium-sized was created in 2008. Before we continue it should be emphasized that we use the FINEP definition about small and medium entrepreneurs, based on annual revenues and not on the number of employees.

In order to participate the Prize, it is necessary for the companies to subscribe their innovations through the FINEP website. After the application deadline, FINEP analysis and sent the proposals to the analysis of a judging panel, composed of experts from different areas and institutions.

The Prize award ceremony takes place in the capital of Brazil, in Brasilia city, in the presence of authorities as the president of FINEP and the President of the Republic.

## **The Winning SMEs**

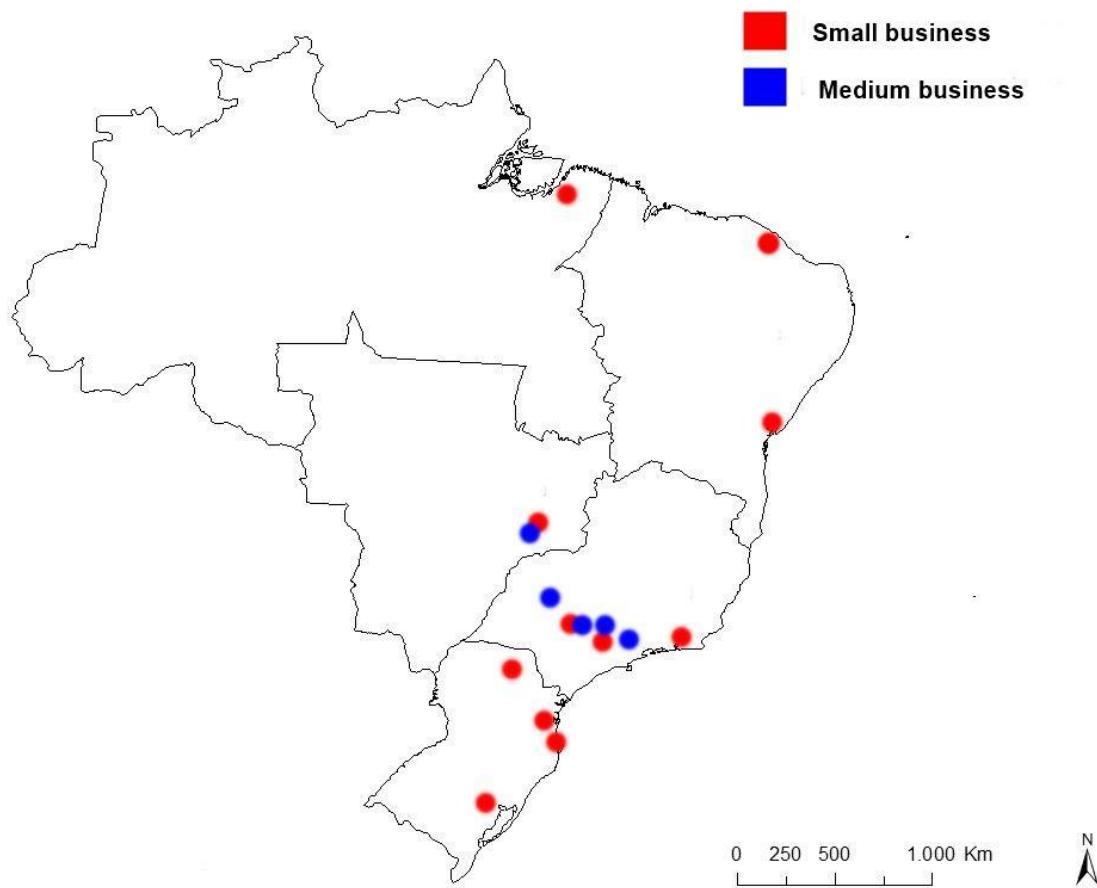
In view of the increased importance of the FINEP Prize in the innovation development scenario in Brazil, to research about the winning companies characteristics is important, as well as other factors that contribute to the understanding the cases considered by FINEP as successful.

Altogether we investigated 18 companies in this study, 13 small and 5 medium entrepreneurs that were laureated from 2001 to 2013. The small company category was created in 2001 and the average company was established in 2008. It is important to emphasize that one same medium-sized company was winning the award twice.

The choice of these categories for this research concerns both the relevance of these companies in the national economic scenario regarding the meaningful participation of them in total entries for the Prize. It is estimated that they represent more than 99% of all companies in Brazil, about 60 % of the national workforce and 30% of GDP (IBGE, 2014; Oliveira and Bertucci, 2003).

In relation to the Prize, the participation of these two groups of companies a total of innovations registrations made in 2008-2013 period, for example, we observe that the two categories represents more than 22 % of all entries (1455 entries from a total of 6750) of the 9 total Prize categories.

Regarding the location of the winning companies, we found that most of them are concentrated in the south-southeast regions of Brazil. Among the small, 8 of the 13 companies are in these regions. 1 of them belongs to Midwest region, 3 of the Northeast and 1 of the North. In turn, the medium companies are located mostly in the state of São Paulo, in the southeast of the country and one in the Midwest region, as shown in Figure 1. In general, therefore, the small companies size are distributed in nine Brazilian states, while the distribution of mid-sized companies is limited to two states only.



*Figure 1. Geographical distribution of the winners of the Innovation Award FINEP in Brazil*

Besides the location, we found other business characteristics, such as the existence of links with universities and research institutes, age, export capacity and developed economic activities.

Thus, as regards the link with teaching and research institutions, medium entrepreneurs majority has some connection to those institutions, while the 13 small businesses, only one does not declare some sort of partnership in their development process innovative.

Regarding to the age of the companies when awarded, there is a significant difference in the two types surveyed in this study. We observe that the average age of small businesses is eleven years for medium businesses this average is 19 years and a half. Among small businesses, there were two, which had three years of life, being the younger of the surveyed to win the Prize. Even regarding to small businesses, the oldest had 23 years when receipt of the award. For medium companies, the youngest winner had 10 years, and the oldest, 30.

One other thing to point out is the analyzed companies in their export capabilities. Among small businesses, the index of performing such activity reaches 70%. Among the medium-sized, in turn, all Award winners are exporters.

It was also conducted a survey of the economic sectors to which these companies belong. Therefore, we used the National Classification of Economic Activities in Brazil, which establishes the operations of companies in sections.

The results of the each company section show that the majority of both small as medium business has as main activity the description "Manufacturing industry". In the case of small, 7 of the 13 companies observed have this haracteristic, followed by 3 companies of "information and communication" and a "Professional Activities, Scientific and Technical". For medium

businesses, classification "Manufacturing industry" was found in 3 of the 6 companies in addition to a branch of the "Construction" and another of "Professional Activities, Scientific and Technical".

Regarding to the innovations made by the winning companies, we have identified 17 of the 19 total new developed. Among the medium-sized, all innovations were identified in which show up the products for surgeries (4 of 6 products) and two software: one related to the electric power sector and the other to Defense area.

The innovations developed by small companies show considerable diversity, which includes software, optical system, apparatus for inspection of pipelines for oil and gas, food, bactericidal coating, dental pins and voice recorder. About the news unidentified, one belongs to a company that develops products and services for the electric and industrial sector and the other to a rubber seal plant that meets the oil and gas industries.

After the presentation of the general characteristics of all companies included in this study, we set out to specificities of the questionnaire respondents and interview. In all, we have four respondent companies: two small (A and D) and two medium-sized (B and C). They are located in different regions and cities in Brazil, two in São Paulo, one in Goiás and Paraná State, as follow:

*Table 1. Companies general data*

	<b>Company A</b>	<b>Company B</b>	<b>Company C</b>	<b>Company D</b>
<b>Company Size</b>	Small	Medium	Medium	Small
<b>Location (State)</b>	São Paulo	Goiás	São Paulo	Paraná
<b>Employees</b>	8	134	137	82
<b>Economic Activity</b>	Machining, lathe and welding services	Non-electronic instruments and appliances manufacturing for medical, surgical, dental and laboratory	Equipment manufacturing and optical instruments, parts and accessories	Manufacture of dental products
<b>Age when awarded</b>	3 years	12 and 15* years	24 years	15 years

\*The company was awarded twice.

## Discussions

The pursuit of Brazil by an way to develop technology system encompasses the adoption of measures aimed at promoting science, technology and innovation. Thus, the FINEP Innovation Award is one of the measures used by the government to promote innovation. As such, since its inception with regional focus to the expansion for participation of companies from all regions of the country, the Prize has undergone significant changes, including the current monetary award. Thus, knowing the Premium features and their winning companies contributes to a broader understanding of the scope of public policies for encouraging innovative actions in the country.

Regarding the characteristics of the SMEs winners of the Prize first point that we observed is about their respective locations. Most companies are concentrated in the south - southeast axis, similar scenario with the National Geographic distribution of Brazilian companies. 2011 data show us that there were about 4.9 million active companies in Brazil, in which the south and southeast regions had 73% of this total (only the state of São Paulo had 1.5

million, or 31%), followed by the northeast region, with 15% of companies in the Midwest region with 8% and the northern region of 4% .

This business demographic merger scenario is reflected similarly in the number of companies that have historically registered their innovations to compete for the FINEP Prize. Among the all categories in the period from 2001 to 2013, the Southeast had 35% of entries, followed by South, with 26% , 15% from northeast, midwest with 13% and North region with 11% .

For three of the four respondent companies of this work, the question of geographical location is also quite relevant for the innovative development capability. Among them, enterprises located in the southeast and south considered the issue as very relevant, while for the company located in the Midwest, in the state of Goiás, the location is not relevant at all. For the visited company respondent, the location on skilled labor hiring has great influence. He cited the fact that professionals trained in institutions from the state of São Paulo compose your entire team.

The discrepancy in national geographic concentration of companies is perceived on issues where there is no national finalists in the award stage. The northern and northeastern regions stand out in this item. Since the beginning of the medium company category of the Prize, in 2008, the northern region had only one company in the year 2009. Northeastern companies were not qualified for the national stage of the category described in the 2012 edition as well in 2013. The small company category participants therefore represented all states in all editions of the Prize, with no initial differentiation between their origins.

Even with regard to the national context, the processing industries represent the second most developed economic activity in all national states, with about 460 000 companies in the country (IBGE, 2011) , second only to the trade. Here the history of the winners of FINEP Award also aligns the national context of companies.

Most of the companies researched are classified as "Manufacturing industry". In addition, all winning companies belong to areas considered as strategic for government actions at the federal level or related with them.

It is worth mentioning the relationship of those SMEs with educational and research institutions in order to develop innovation. As we can observed, most of the winning companies claim to have ties to those institutions and among the companies interviewed, three declared develop products directly with universities and research institutes. The data obtained from the questionnaires also showed that three of the respondents were used not only partnerships with universities, but also with suppliers and customers to create the new product that won the FINEP Prize. This fact provides SMEs observed with a very different characterization of the others Brazilian companies. This, due to this interaction appears as one of the barriers to innovation in Brazil and are the goals of some of the policies implemented in the period that this study encompasses.

About innovative investment and the importance of innovation for the SMEs of this study, the respondents pointed out significant levels of investment of funds from its annual revenues to innovation, with percentage ranging from 5 % to 20 %, the latter rate indicated by the small company size. This company that, on turn, has developed a new product on the world market level, while the medium-sized novelty of developed and award-winning products developed for the domestic market. For all interviewed the process of innovation development is very relevant, what justifie the amount of employees allocated to activities related to innovation. These facts contradict to the data of most small Brazilian companies, as previously pointed out, that have few investments in R & D & I .

The importance of innovative activity for these companies also includes the hiring of skilled labor and significant allocation of staff to work directly with the development of innovation. The company interviewed, for example, has an R & D department and exclusive

laboratory for the development of new products. In most, has a qualified staff (all with postgraduate level, which includes an employee with Postdoctoral).

The qualification of employees is also relevant in the interviewed companies, which also designate a significant portion of its employees to innovation - ranging from 7% to 50% of the total employed hand work. The company said that half of its employees are allocated to the innovative development has 8 employees currently. Thus, 4 are dedicated to innovation, but not exclusively. According to the respondent, 2 of these employees work full time in activities related to innovation and the other 2 just part time.

In addition, all respondents considered as very significant the process of innovation development in the company. On the other hand, all indicated odds internal structures for performing this procedure. Most has listed the hiring of difficulty of skilled labor and the availability of financial resources or the company still insufficient infrastructure. The company interviewed also cited the difficulty of coordinating innovation activities with other departments as one of the challenges that have to deal with.

As regards the innovative products of companies, as well as identifying the most sample innovations, there is another fact to be pointed out: the degree of product innovation. In relation to the projects belonging to the companies that answer the questionnaire, one is totally new to the international market and two are new in the domestic market.

For this classification, the innovations of the three firms would be considered radical innovations. This aspect makes the companies mentioned detract from most developing technological innovation in the country, if we consider that there is a higher incidence of incremental innovations among the all the others companies. To this differentiation can tow all listed features of the winning companies Prize and discussed so far, including the expertise of its teams and the continuous process of technological development. About the continuity of the innovation process in the winning companies, three of the respondents have invested the award in development of new products.

Another point to be appointed out on the overall results collected in this work refers to the export capacity of these companies. With a 70% export index for small and 100% for medium-sized, are highlighted the different characteristics of these companies in the national economic scenario. The high number of exporting companies among the analyzed include various factors such as the competitiveness of the products developed (competitive in foreign markets), your source sectors (priority for the Government), the technological intensity and also the sophistication of industrial companies.

Finally, the average age of the winning companies Prize was also verified in our study. Brazilian companies have an average life cycle of 35 years and currently the average for companies active in the country is 10 years (IBGE, 2014; IBPT, 2013). The small business average age of the Prize winners is far from the average of "creative destruction" of the Brazilian market. They had about 11 years upon receipt of the Prize. The medium size ones, in turn, had 19.5 years on average when they were recognized as innovative.

Finally, the incentive for Prize companies participation also extends to advertising that FINEP provides to the winning companies through disclosure on your website and the promotion of the event made by other media, in function of its importance at the national level.

## Conclusion

In terms of Brazilian policies, the FINEP Prize has a character not only meritocratic - according to the analyzes and evaluations of innovations realized by the entity - but also democratic, that includes innovations and innovative institutions of different types and regions. Besides that, this study also demonstrated the existence of innovative development of advanced in all regions of the country, although unevenly.

Based on the analyzes performed in this study, we showed that the winning SMEs have characteristics that, interconnected, represent a possible framework to be developed and encouraged in the country, through implementations of new policies to promote innovation, or improvement of existing ones.

We do not intend to create or discuss an "innovation formula". However, knowledge of some characteristics of the winners may be indicative of the advances that could be realized by some companies in the recent Brazilian scenario and the influence of public policies in these developments. Therefore, we believe that, for the fulfillment of innovative mission, it is necessary to consider the small and medium-sized companies for developing domestic technology, considering that those companies represent alternatives for achieving innovation in Brazil with high impact.

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